

REMARKS

Office Action Summary

Claims 13-23 are all the claims pending in the application. Claims 13-23 presently stand rejected.

Claims 13-21 and 23 are rejected under 35 U.S.C. § 102(b) as being anticipated by McMillin (5,556,687).

Claims 13-23 are rejected under 35 U.S.C. § 103(a) as being unpatentable over McMillin (5,556,687) in view of Tormala et al. (5,084,051).

Analysis of the Prior Art Rejections

As stated in pending claim 13, the connecting device is operative to squeeze and lock the longitudinal implant into position by both of (1) depression caused by squeezing and (2) increased friction between the implant and connecting device. A stable connection is achieved from friction and deformation of the material due to the different rigidity between the composite and the titanium components.

As discussed in the pending specification (see paragraph [0025]), the implant is softer and rougher than the connecting device, so that the implant is depressed by the squeezing of the connecting device thereto, and the surface friction of the implant prevents the connecting device from moving relative to the implant. These two features enhance the stability of the device.

McMillin discloses a longitudinal implant which has spherical recesses 46 and 48 for accepting the connecting device thereto. These recesses have a radius that is the same as a radius of a spherical surface of a clamp nut as stated in col. 4, lines 20 to 23. These recesses prevent the

screw from moving along the slot. When the implant is utilized, only the positions of these recesses are available for accepting the screws.

Thus, the structure of McMillan does not allow for the same squeezing and depression as the present invention due to the provision of the recesses. The recesses are formed on the implant before the screws are disposed thereto, so that the clamping forces applied to the plate are "in a direction normal to the surface 44 instead of transverse to the axis 12" (col. 4, lines 23-27). Thus, the screws do not form depressions on the implant, but rather the implant has the recesses preformed for accepting the screws in order to affect the clamping forces of the screws. Thus, McMillan does not disclose nor suggest a longitudinal implant and connecting device, wherein said connecting device is operative to squeeze and form depressions in the longitudinal implant as in the present invention.

The pending specification refers to fixation systems similar to McMillin which utilize indentations along the slot. Besides more complicated manufacturing, indentations limit the number of available positions for placing the connecting member (see page 2, lines 7-9).

Applicant has determined through practice that the connection between the connecting device and the longitudinal implant according to the present invention is very reliable. As shown in FIGS. 1, 2, 3, 4, 7 and 8, the longitudinal implant is manufactured without recesses, and thus, any position is available for fixing the screw. Thus, the longitudinal implant according to the present invention can be manufactured more economically than the prior art, since no recesses must be formed therein. As no recesses must be made, filaments are not cut or otherwise damaged. Still further, this structure for the implant allows the planar surfaces of the slip washers to engage with the implant (see page 4 and FIG. 7 of the originally filed specification).

Still further, practice of the invention has proved that the compression needed to make the depression does not change the strength characteristics of the implant, and this is considered an unexpected result of the present invention.

In view of the foregoing, McMillin does not teach or suggest the present invention according to claim 1.

Tormala is cited for disclosing an implant in the shape of a rod. Tormala does not supplement the deficiencies of McMillin discussed above, and thus, the combination of these references fails to teach or suggest the claimed invention according to claim 1.

The remaining rejections are directed to the dependent claims. These claims are patentable for at least the same reasons as claim 1, by virtue of their dependency therefrom.

Conclusion

In view of the above, reconsideration and allowance of this application are now believed to be in order, and such actions are hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, the Examiner is kindly requested to contact the undersigned at the telephone number listed below.

AMENDMENT UNDER 37 C.F.R. § 1.116
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The USPTO is directed and authorized to charge all required fees, except for the Issue Fee and the Publication Fee, to Deposit Account No. 19-4880. Please also credit any overpayments to said Deposit Account.

Respectfully submitted,



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